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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,930	01/13/2005	Tommi Koistinen	60282.00238	7618

32294   7590   11/20/2007

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TAHA, SHAQ

ART UNIT	PAPER NUMBER
2146	

MAIL DATE	DELIVERY MODE
11/20/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/518,930	KOISTINEN ET AL.
	Examiner	**Art Unit**	
	Shaq Taha	2146	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>13 September 2007</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>26 - 53</u> is/are pending in the application.

     4a) Of the above claim(s) <u>38 - 40</u> is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>26 - 53</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some * c)☐ None of:

         1.☐ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. _____.

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 26 - 53 have been considered but are

moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form

the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 26 - 50 are rejected under 35 U.S.C. 102(e) as being anticipated by Lin et al (US

6,272,522).

- Regarding claim 26, Lin teaches a method for balancing the load of resources in

  a packet switched connection, **[A data packet switching and server load**

  balancing device is provided, (See Abstract) & Fig. Wherein the it discloses

  the load balancing between the switching processors];

within a communication system **[respective external networks for receiving
and sending data packets via a particular communication protocol, (See
Abstract)]**;

said system comprising processing units for performing communication,
**[computer system comprises a plurality of symmetrical processors
coupled together by a common data bus, (See Abstract)]**, at least one load
balancing unit for distributing the load to said processing units, **[The control
processor receives raw load status data from the external networks and
generates load distribution configuration data therefrom, (See Abstract)]**;
and a data storage, **[Fig. 4, Ref # 34]**;

said method comprising: obtaining a current connection state as well as a current
load state of said processing units from said data storage, **[The switching
processor obtains the current load distribution data from the active buffer,
(Column 7, lines 12 – 13) & (Fig. 13, Ref # 342)]**;

selecting by said load balancing unit a processing unit on a per packet basis
irrespective of a specific connection to which a respective packet belongs, **[In
addition, the switching processors re-write the routing information
included in the header portion of the data packets to reflect the selected
one of the external networks, (See Abstract) & Fig. 3, Ref # 20 wherein a
unit per packet is disclosed]**;

maintaining information about the load state of each processing unit, **[A routing
daemon within the control processor is a program that executes in the**

background to retrieve the information stored in the routing table and

maintains the status of the routing table as changes are made to the

configuration, (Column 6, lines 63 – 67)];

so that said selecting step is performed by selecting a processing unit to serve

and process a respective packet based on the load state, **[The switching**

processors route received ones of the data packets to a selected one of the

external networks in accordance with information included in a header

portion of the data packets and the load distribution configuration data,

(See Abstract)].

- Regarding claim 27, Lin teaches a method wherein said data storage is accessed
  by said load balancing unit, **[The load distribution configuration data is**
  stored in the main memory for access by the data packet switching
  processors, (See Abstract)].

- Regarding claim 28, Lin teaches a method wherein said data storage is accessed
  by said processing units, **[The load distribution configuration data is stored**
  in the main memory for access by the data packet switching processors,
  (See Abstract)].

- Regarding claim 29, Lin teaches a method wherein said information about the
  load state is maintained as a Boolean state, **[it is inherent to use a Boolean**

value, since it is a digital or analog that depends on 1s and 0s, or true and
false].

- Regarding claim 30, Lin teaches a method wherein a processing unit is selected
  in a round-robin fashion, **[it is inherent to use a round-robin fashion, since it
  is describes correspondence authored or signed by numerous individuals
  to a single address].**

- Regarding claim 31, Lin teaches a method wherein a supported service profile for
  each processing unit is maintained, **[The connection table maintains a record
  of the TCP and UDP connections routed by each of the switching
  processors, (Column 7, lines 25 – 27)].**

- Regarding claim 32, Lin teaches a method wherein said supported service profile
  is used as additional selection criteria. **[At any given time, one of the two
  memory buffers is the active buffer and the other is the back-up buffer,
  (Column 7, lines 8 – 10)].**

- Regarding claim 33, Lin teaches a method wherein said load balancing unit is
  configured to obtain a load state from each processing unit upon a hardware
  based mechanism, **[As illustrated in FIG. 8, the control processor does not
  have a direct connection to the network drivers. Instead, the pseudo-**

network driver is configured to appear to the user application programs as

a hardware network interface, (Column 11, lines 10 – 14)].

- Regarding claim 34, Lin teaches a method wherein said load balancing unit is

  configured to obtain a load state from each processing unit upon a packet based

  mechanism, **[It is anticipated that the load balancing and packet switching**

  device remain continuously in an operational state, and so this initialization

  step may only be executed rarely, (Column 8, lines 19 – 22)].

- Regarding claim 35, Lin teaches a method wherein a load state of a processing

  unit is inserted into a packet processed by said unit, **[The switching processors**

  route received ones of the data packets to a selected one of the external

  networks in accordance with information included in a header portion of

  the data packets and the load distribution configuration data, (See

  Abstract)].

- Regarding claim 36, Lin teaches a method wherein a packet returned by a

  processing unit is interpreted as a flag for a free resource, **[After step 106, the**

  packet engine module 72 returns to step 102. This first processing loop will

  repeat indefinitely until a received data packet is detected at step 104,

  (Column 8, lines 34 – 37)].

- Regarding claim 37, Lin teaches a method wherein excess traffic is redirected to another load balancing unit, said excess traffic being defined upon the number of active processing units, **[Routers read the network address in each transmitted data packet and make a decision on how to send it based on the most expedient route (traffic load, line costs, speed, bad lines, etc.), (Column 4, lines 43 – 46)]**.

- Regarding claim 38, Lin teaches a device unit for serving and processing packets of a communication connection, **[A data packet switching and server load balancing device is provided by a general-purpose multiprocessor computer system, (See Abstract)]**;

  comprising: means adapted to inform a load state of said device to a balancing unit, **[FIG. 4 is a block diagram depicting communication of information between the control processor and one of the switching processors, (Column 3, lines 35 – 37)]**;

  and means adapted to obtain a state of said communication connection, **[It is anticipated that the load balancing and packet switching device remain continuously in an operational state, and so this initialization step may only be executed rarely, (Column 8, lines 19 – 22)]**.

  wherein said device unit is adapted to serve and process packets of plural connections, **[A first one of the processors is adapted to serve as a control**

processor and remaining ones of the processors are adapted to serve as

data packet switching processors, (See Abstract)].

- Regarding claim 39, Lin teaches a device unit wherein said obtaining means is
  adapted to retrieve said communication connection state from a data storage, [If
  the packet switching processor determines at step that the intended
  destination for the data packet is one of the user applications running on
  the control processor, the data packet is written into the data packet
  storage location of the shared memory, (Column 39 – 43)].

- Regarding claim 40, Lin teaches a device unit wherein said obtaining means is
  adapted to retrieve said communication connection state from a packet being
  under processing, [If the packet switching processor determines at step that
  the intended destination for the data packet is one of the user applications
  running on the control processor, the data packet is written into the data
  packet storage location of the shared memory, (Column 39 – 43)].

- Regarding claim 41, Lin teaches a device unit for balancing a load of each of
  multiple processing units performing a packet switched communication
  connection, [A data packet switching and server load balancing device is
  provided by a general-purpose multiprocessor computer system, (See
  Abstract)];

comprising: means for maintaining a load state of each of said processing units, **[A routing daemon within the control processor is a program that executes in the background to retrieve the information stored in the routing table and maintains the status of the routing table as changes are made to the configuration, (Column 6, lines 63 – 67)];**

and means adapted to select a processing unit on the basis of a respective load state on a per packet basis irrespective of a specific connection to which a respective packet belongs, **[In addition, the switching processors re-write the routing information included in the header portion of the data packets to reflect the selected one of the external networks, (See Abstract)];**

- Regarding claim 42, Lin teaches a device wherein a load state of a processing unit is contained in a table, **[The shared memory further includes a routing table, a configuration table, and a connection table, (Column 6, lines 55 – 56)].**

- Regarding claim 43 Lin teaches a device wherein a load state of a processing unit is expressed as a Boolean value, **[it is inherent to use a Boolean value, since it is a digital or analog that depends on 1s and 0s, or true and false].**

- Regarding claim 44, Lin teaches a device wherein a load state of a processing unit is expressed as value which corresponds to the percentage of load, **[This**

raw data includes various factors, including the number of clients presently

being served, the utilization rates of the CPU and memory of the

application server processor, the average execution time, and the number

of requests per second, (Column 6, lines 39 – 43)].

- Regarding claim 45, Lin teaches a device wherein said selecting means is

  adapted such that a processing unit is selected also on the basis of a parameter

  indicating the service profile supported by a respective processing unit, **[This**

  raw data includes various factors, including the number of clients presently

  being served, the utilization rates of the CPU and memory of the

  application server processor, the average execution time, and the number

  of requests per second, (Column 6, lines 39 – 43) & (Fig. 2)].

- Regarding claim 46, Lin teaches a device wherein said parameter is contained in

  a table, **[The shared memory further includes a routing table, a**

  configuration table, and a connection table, (Column 6, lines 55 – 56)].

- Regarding claim 47, Lin teaches a device further comprising means adapted to

  insert a communication connection state into a packet to be routed, **[As also**

  known in the art, a router is a device that routes data packets between

  networks. Routers read the network address in each transmitted data

packet and make a decision on how to send it based on the most expedient

route, (Column 4, lines 41 – 45)].

- Regarding claim 48, Lin teaches a device wherein the processing units are

  comprised of multi core digital signal processing means having shared data

  storage for all cores, **[Fig. 2 & 3].**

  whereby said device comprises a first level of load balancing for selecting a

  digital signal processing means and a second level of load balancing for

  selecting a single core, **[FIG. 10 is a block diagram illustrating a third**

  embodiment of the invention having a user-level network interface for

  applications operating on the switching processor, (Column 3, lines 53 –

  55)].

- Regarding claim 49, Lin teaches a device further comprising means for

  redirecting excess traffic to another device, wherein said excess traffic is defined

  upon the number of active processing units, **[Routers read the network**

  address in each transmitted data packet and make a decision on how to

  send it based on the most expedient route (traffic load, line costs, speed,

  bad lines, etc.), (Column 4, lines 43 – 46)].

- Regarding claim 50, Lin teaches a system configured to obtain a current

  connection state as well as a current load state of said processing units from said

data storage, **[The switching processor obtains the current load distribution**

data from the active buffer, (Column 7, lines 12 – 13)];

selecting by said load balancing unit a processing unit on a per packet basis

irrespective of a specific connection to which a respective packet belongs, **[In**

addition, the switching processors re-write the routing information

included in the header portion of the data packets to reflect the selected

one of the external networks, (See Abstract)];

maintaining information about the load state of each processing unit, **[A routing**

daemon within the control processor is a program that executes in the

background to retrieve the information stored in the routing table and

maintains the status of the routing table as changes are made to the

configuration, (Column 6, lines 63 – 67)];

so that said selecting step is performed by selecting a processing unit to serve

and process a respective packet based on the load state, **[The switching**

processors route received ones of the data packets to a selected one of the

external networks in accordance with information included in a header

portion of the data packets and the load distribution configuration data,

(See Abstract)].

- Regarding claim 51, Lin teaches a computer program embodied on a computer

  readable medium, the computer readable medium storing code comprising

  computer executable instructions configured to perform a method for balancing

the load of resources in a packet switched connection, **[A data packet**

switching and server load balancing device is provided by a general-

purpose multiprocessor computer system, (See Abstract)];

within a communication system **[respective external networks for receiving**

and sending data packets via a particular communication protocol, (See

Abstract)];

said system comprising processing units for performing communication,

[computer system comprises a plurality of symmetrical processors

coupled together by a common data bus, (See Abstract)], at least one load

balancing unit for distributing the load to said processing units, **[The control**

processor receives raw load status data from the external networks and

generates load distribution configuration data therefrom, (See Abstract)];

and a data storage, **[a main memory shared by the processors, (See**

Abstract)];

said method comprising: obtaining a current connection state as well as a current

load state of said processing units from said data storage, **[The switching**

processor obtains the current load distribution data from the active buffer,

(Column 7, lines 12 – 13)];

selecting by said load balancing unit a processing unit on a per packet basis

irrespective of a specific connection to which a respective packet belongs, **[In**

addition, the switching processors re-write the routing information

included in the header portion of the data packets to reflect the selected

one of the external networks, (See Abstract)];

maintaining information about the load state of each processing unit, **[A routing**

daemon within the control processor is a program that executes in the

background to retrieve the information stored in the routing table and

maintains the status of the routing table as changes are made to the

configuration, (Column 6, lines 63 – 67)];

so that said selecting step is performed by selecting a processing unit to serve

and process a respective packet based on the load state, **[The switching**

processors route received ones of the data packets to a selected one of the

external networks in accordance with information included in a header

portion of the data packets and the load distribution configuration data,

(See Abstract)].

- Regarding claim 52, Lin teaches a system comprising processing units

  performing communication, **[A data packet switching and server load**

  balancing device is provided by a general-purpose multiprocessor

  computer system, (See Abstract)];

  and at least one load balancing unit for distributing the load to said processing

  units, **[Fig. 1, Ref # 10];**

  a data storage, **[Fig. 4, Ref # 34];**

  wherein the load-balancing unit is configured to: obtain a current connection state

  and a current load state of said processing units from said data storage, **[The**

  switching processor obtains the current load distribution data from the

  active buffer, (Column 7, lines 12 – 13) & (Fig. 13, Ref # 342)];

  maintain information about the load state of each of said processing units, **[A**

  routing daemon within the control processor is a program that executes in

  the background to retrieve the information stored in the routing table and

  maintains the status of the routing table as changes are made to the

  configuration, (Column 6, lines 63 – 67)];

  and select a processing unit on a per packet basis irrespective of a specific

  connection to which a respective packet belongs by selecting one of the

  processing units to serve and process a respective packet based on the load

  state, **[In addition, the switching processors re-write the routing information**

included in the header portion of the data packets to reflect the selected

one of the external networks, (See Abstract) & Fig. 3, Ref # 20 wherein a

unit per packet is disclosed].

- Regarding claim 53, Lin teaches a load balancing unit is configured to:

obtain a current connection state and a current load state of each of a plurality of

processing units, **[The switching processor obtains the current load**

distribution data from the active buffer, (Column 7, lines 12 – 13) & (Fig. 13,

Ref # 342)];

maintain information about the load state of each of said processing units, **[A**

routing daemon within the control processor is a program that executes in

the background to retrieve the information stored in the routing table and

maintains the status of the routing table as changes are made to the

configuration, (Column 6, lines 63 – 67)];

and select a processing unit on a per packet basis irrespective of a specific

connection to which a respective packet belongs by selecting one of the

processing units to serve and process a respective packet based on the load

state of the selected processing unit, **[In addition, the switching processors**

re-write the routing information included in the header portion of the data

packets to reflect the selected one of the external networks, (See Abstract)

& Fig. 3, Ref # 20 wherein a unit per packet is disclosed].

Conclusion

The following prior art made of record and not relied upon is cited to establish the level of skill in the applicant's art and those arts considered reasonably pertinent to applicant's disclosure. See **PEP 707.05(c)**.

The following are analogous art because they are from the same field of endeavor of Load Balancing Device and Method Therefor:

- Lin et al. Paten No: (US 6,272,522)

- Bowman-Amuah et al. Patent No: (US 6,578,068)

- Budka et al. Paten No: (US 6,014,567)

- Eriksson et al. Paten No: (US 6,385,449)

- Kotzin et al. Patent No: (US 5,796,722)

- Broder et al. Patent No: (5,991,808)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Shaq Taha** whose telephone number is 571-270-1921. The examiner can normally be reached on 8:30am-5pm Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, **Jeff Put** can be reached on 571-272-6798.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free).

11/08/07

S. Taha

JEFFREY PWU
SUPERVISORY PATENT EXAMINER